

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. Authorization for this examiner's amendment was given in a telephone interview with Robert Downs on 10/21/2010.

Please amend the claims as follows (see the following page):

1-6. (Canceled)

7. (Currently Amended) Mobile equipment comprising:
a single pickup device picking up an image of a subject;
a parallax information portion determining parallax information of said subject
based on a distance between human eyes;
a three dimensional image creation portion creating a three dimensional image by
applying said parallax information to said image; and

a display unit displaying said three dimensional image,
wherein said three dimensional image creation portion cuts a human face out of
said image picked up, to obtain a face image and provides said face image with said
parallax information, further comprising:

a memory for storing a face geometry model, wherein said three dimensional
image creation portion generates three dimensional data from the human face based on
the face geometry model, and converts the three dimensional data into the three
dimensional image.

8. (Original) The mobile equipment of claim 7, wherein said pickup device is a
pickup device for picking up a two dimensional image.

9. (Original) The mobile equipment of claim 8, further comprising:

a communication control portion controlling a communication with another device; and

a transmission and reception portion allowing a call to and from another device.

10. (Currently Amended) Mobile equipment comprising:

a single pickup device picking up an image of a subject;

a parallax information portion determining parallax information of said subject based on a distance between human eyes;

a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image; and

a display unit displaying said three dimensional image,

wherein said three dimensional image creation portion selects a particular subject from said image picked up, to obtain an image of the subject and provides said image of the subject and an image included in said image picked up other than said particular subject with different parallax information, respectively, further comprising

a memory for storing a face geometry model, wherein said three dimensional image creation portion generates three dimensional data from the selected subject based on the face geometry model, and converts the three dimensional data into the three dimensional image.

11. (Original) The mobile equipment of claim 10, wherein said pickup device is a pickup device for picking up a two dimensional image.

12. (Original) The mobile equipment of claim 11, further comprising:

a communication control portion controlling a communication with another device; and
a transmission and reception portion allowing a call to and from another device.

13. (Currently Amended) A three dimensional conversion program product stored on a non-transitory computer readable storage medium causing a computer to execute a three dimensional conversion process comprising the steps of:

inputting a two dimensional image;
cutting a human face image out of said two dimensional image to obtain a face image;
determining parallax information of said face image based on a distance between human eyes;
creating a three dimensional image by applying said parallax information to said face image; and

outputting said three dimensional image, further comprising
a memory for storing a face geometry model, wherein the step of creating a three dimensional image further comprises generating three dimensional data from the human face image based on the face geometry model, and converting the three dimensional data into the three dimensional image.

14. (Canceled)

15. (Previously Presented) Mobile equipment comprising:

- a pickup device picking up an image of a subject;
- a parallax information portion determining parallax information of said subject;
- a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image; and
- a display unit displaying said three dimensional image,

wherein said parallax information portion calculates said parallax information based on differences in the brightness between parts of the image.

16. (Currently Amended) Mobile equipment comprising:

- a pickup device picking up an image of a subject;
- a parallax information portion determining parallax information of said subject;
- a three dimensional image creation portion creating a three dimensional image by applying said parallax information to said image; and
- a display unit displaying said three dimensional image,

wherein said parallax information portion calculates said parallax information based on the intensity of light reflected from the subject and on a distance between human eyes, further comprising:

a memory for storing a face geometry model, wherein said three dimensional image creation portion generates three dimensional data from the image of the subject based on the face geometry model, and converts the three dimensional data into the three dimensional image.

17. (Previously Presented) Mobile equipment comprising:

- a pickup device picking up a two dimensional image data of a subject;
- a three dimensional image creation portion obtaining display data for three dimensional display, the display data including image data for a right eye and for a left eye, wherein said three dimensional image creation portion includes,
- a first data process means for generating three dimensional data derived from the two dimensional data; and
- a second data process means for converting the three dimensional data into the image data for the right eye and the image data for the left eye; and
- a display unit displaying an image for the three dimensional display based on the display data.

18. (Previously Presented) The mobile equipment of claim 17, wherein said display unit includes a switching liquid crystal element switchable in deflection angle, and a patterned phase difference plate patterned in a slit;

said mobile equipment further comprising a controlling portion to change a relationship of said liquid crystal element phase and said phase difference plate.

19. (Previously Presented) The mobile equipment of claim 18, wherein said display unit further includes a liquid crystal including a plurality of pixels and said controlling portion changes the relationship to prevent an image for the three dimensional display from passing through the pixels.

20. (Previously Presented) The mobile equipment of claim 18, further comprising operation keys receiving an input, wherein said controlling portion changes the relationship based on the input.

21. (Previously Presented) The mobile equipment of claim 17, wherein said pickup device is a single pickup device.

22. (Previously Presented) The mobile equipment of claim 17, further comprising
a communication control portion controlling a communication with another device; and
a transmission and reception portion allowing a call to and from another device.

23. (Previously Presented) The mobile equipment of claim 17, further comprising

a memory for storing a face geometry model, wherein said three dimensional image creation portion further includes an extraction means for extracting a human face image data out of the two dimensional image data, wherein said first data process means generates the three dimensional data from the human face image data based on the face geometry model.

24. (Previously Presented) The mobile equipment of claim 17, further comprising a three dimensional shutter button to pick up the two dimensional image data,

wherein said three dimensional image creation portion obtains the display data in response to press of said three dimensional shutter button.

25. (Previously Presented) The mobile equipment of claim 17, further comprising

a dividing portion for dividing the two dimensional image data picked up by said pickup device into a plurality of blocks; and

a detecting portion for detecting the brightness of each of said plurality of blocks, wherein

said three dimensional image creation portion generates the display data in response to the brightness of each of said plurality of blocks.

26. (Previously Presented) The mobile equipment of claim 17, further comprising

a radiation unit illuminating the subject with light; and

a detection portion detecting the intensity of the light,

wherein said three dimensional image creation portion obtains the display data in response to the intensity of the light.

27. (Previously Presented) The mobile equipment of claim 17, further comprising operation keys for receiving an input for selection of a subject from the background in the two dimensional image displayed on said display unit, wherein

said three dimensional image creation portion further includes a selection data process means for generating the two dimensional image data of the subject in response to the selection.

28. (Previously Presented) The mobile equipment of claim 27, wherein said operation keys receive inputs for the selection of a plurality of subjects and said selection data process means generates the two dimensional image data for each of the selected subjects.

29. (Currently Amended) A three dimensional conversion program product stored on a non-transitory computer readable storage medium causing a computer to execute a three dimensional conversion process comprising the steps of:

receiving an input of a two dimensional image data of a subject;
obtaining display data for three dimensional display, the display data including image data for a right eye and for a left eye, wherein said step of obtaining the display data includes the steps of:

generating three dimensional data derived from the two dimensional data; and
converting the three dimensional data into the image data for the right eye and the image data for the left eye; and the process further comprising
outputting the display data.

30. (Previously Presented) The mobile equipment of claim 15, wherein said parallax information of said subject is determined based on a distance between human eyes.

31-35. (Canceled)

Allowable Subject Matter

Claims 7-13 and 15-30 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL F. HAJNIK whose telephone number is (571)272-7642. The examiner can normally be reached on Mon-Fri (8:30A-5:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel F Hajnik/
Primary Examiner, Art Unit 2628